

Work Order ID 87078

July-10-12 2:58:57 PM

87078

Page 1

Item ID: D3649-041

Accept

N900040100

Setup Start ***NS1***

Revision ID:

Stop ***NS2***

Item Name: Tunnel Bottom Panel Assembly

Start Date: 7/10/12 Start Qty: 1.00

1

Cust Item ID:

Required Date: 8/10/12 Req'd Qty: 1.00

1

Customer:

Reference:

Approvals:

Process Plan:

Date: 12-07-12

Tooling:

Date:

QC:

Date:

SPC (Y/N):

Date:

Run Start ***NR1***

Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
--------------------------------	--------------------------	----------------------	---------	--------	--------------	---------------	---------------	------------------	----------------

Draw Nbr

Revision Nbr

D3649

Rev B

100

0.00

100

FLOW WATER JET

Waterjet

Memo

0.00

FLOW CNC Waterjet

1-Cut as per Dwg D3649 Dwg Rev: B Prog Rev: B 2-
Debur if necessary

304 . 018

1 0 Jm 12-7-22

110

QC2- Inspect parts off machine FAI/FAIB

0.00

110

QC

Memo

0.00

Quality Control

1 0 Jm 12-7-22

120

QC8- Inspect parts - second check

0.00

120

QC

Memo

0.00

Quality Control

SMB
12723

AS
16
9-8 12/9/23

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Work Order ID 87078

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Page 2

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Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____

Run Start ***NR1***

QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
--------------------------------	--------------------------	----------------------	---------	--------	--------------	---------------	---------------	------------------	----------------

130

130

Brake NC

Brake NC

NC BRAKE

Memo

Form as per Dwg D3649

0.00

0.00

140

140

QC

Quality Control

QC5- Inspect part completeness to step on W/O

Memo

0.00

0.00

150

150

Small Fab

Small Fab

Small Fab

Memo

1- Form dimple for MS20427M3 rivet per dwg D3649*****ensure
dimples are on the proper side*****2-Assemble nutplates as per dwg
D3649

0.00

0.00

LB
12/09/24Smb
12-9-24
DAS
16
2-5
12/09/24

1

1K

LB
12/09/25

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Work Order ID 87078

July-10-12 2:58:57 PM

87078

Page 3

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Revision ID:

Stop ***NS2***

Item Name: Tunnel Bottom Panel Assembly

Start Date: 7/10/12 Start Qty: 1.00 ***1***

Cust Item ID:

Required Date: 8/10/12 Req'd Qty: 1.00 ***1***

Customer:

Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____

Run Start ***NR1***

QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
160 *160* QC Quality Control	QC5- Inspect part completeness to step on W/O Memo	0.00 Smb 0.00 12.9.25	DA 160 12/10/15			1			
170 *170* Packaging Packaging	Identify as per dwg & Stock Location: <u>GA</u> Memo	0.00 0.00				1			SB 12/10/03
180 *180* QC Quality Control	QC21- Final Inspection - Work Order Release Memo	0.00 0.00							12/10/13 ME 12-10-03

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Picklist Print

July-10-12 2:58:56 PM

Page 1

Work Order ID: 87078

Parent Item: D3649-041

Parent Item Name: Tunnel Bottom Panel Assembly

Start Date: 7/10/12

Required Date: 8/10/12

Start Qty: 1.00

Required Qty: 1.00

Comments: IPP Rev:A New Issue 07-09-26 EC verified by: DD
IPP Rev:B ECN 1113P 08-01-22 DD verified by: EC
IPP Rev:C Ecn1162 08-04-02 DD verified by:EC

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
M304S26GA 304/316 0.018 SHEET		Purchased	No			150	sf	84.6500	6.069	6.3884211 6.5			In 12-7-22
				<u>Location</u>		<u>Loc Qty</u>		<u>Loc Code</u>					
				MAT020		84.65							
				117798		84.65				117798			
MS20427M3-3 Rivet		Purchased	No			110	Each	1,149.0000	88	88			EP 12/09/25
				<u>Location</u>		<u>Loc Qty</u>		<u>Loc Code</u>					
				GA		1146							
				121114		1146							
				ST318		3							
				120930		3							
MS21060-3K Nut Plate		Purchased	No			150	Each	137.0000	22	22			EP 12/09/25
				<u>Location</u>		<u>Loc Qty</u>		<u>Loc Code</u>					
				ST302		137							
				116857		17							
				117423		20							
				117977		50				8			
				118267		50				14			
MS21062-3K Nut Plate		Purchased	No			150	Each	54.0000	22	22			EP 12/09/25
				<u>Location</u>		<u>Loc Qty</u>		<u>Loc Code</u>					
				ST302		54							
				109590		6							
				117343		48				28			

Dart Aerospace Ltd

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

DART AEROSPACE LTD		Work Order:	87678
Description: Tunnel Bottom Panel		Part Number:	D3649-1
Inspection Dwg: D3649	Rev: B	Page 1 of 2	

FIRST ARTICLE INSPECTION CHECKLIST

☒ First Article ☐ Prototype

Drawing Dimension	Tolerance	Actual Dimension	Accept	Reject	Method of Inspection	Comments
Ø0.098	+0.004/-0.001	0.099"	✓		V	mm01
Ø0.196	+0.005/-0.001	0.197"	✓		V	"
Ø0.250	+0.005/-0.001	0.252"	✓		V	"
0.400	+/-0.010	0.406"	✓		✓	"
0.385	+/-0.010	0.389"	✓		✓	"
0.250	+/-0.010	0.255"	✓		V	"
44.57	+/-0.030	44.57"	✓		VHT	H301
11.70	+/-0.030	11.699"	✓		V	Producers
3.370	+/-0.030	3.374"	✓		V	mm01
13.76	+/-0.030	13.76"	✓		VHT	H301
4.300	+/-0.010	4.297"	✓		✓	mm01
10.11	+/-0.030	10.109"	✓		V	Producers
12.90	+/-0.030	12.90"	✓		MT	H301
16.61	+/-0.030	16.61"	✓		MT	"
15.80	+/-0.030	15.80"	✓		MT	"
3.950	+/-0.010	3.946"	✓		✓	mm01
0.42	+/-0.030	0.422"	✓		V	"
0.41	+/-0.030	0.404"	✓		V	"
0.85	+/-0.030	0.847"	✓		V	"
19.64	+/-0.030	19.64"	✓		MT	H301
0.54	+/-0.030	0.549"	✓		✓	mm01
1.400	+/-0.010	1.407"	✓		✓	"
2.63	+/-0.030	2.628"	✓		✓	"
2.93	+/-0.030	2.923"	✓		✓	"
1.49	+/-0.030	1.494"	✓		✓	"
5.98	+/-0.030	5.979"	✓		✓	"
0.54	+/-0.030	0.546"	✓		✓	"
2.20	+/-0.030	2.202"	✓		✓	"
2.75	+/-0.030	2.753"	✓		✓	"
2.48	+/-0.030	2.476"	✓		✓	"

DART AEROSPACE LTD		Work Order:	
Description: Tunnel Bottom Panel		Part Number:	D3649-1
Inspection Dwg: D3649	Rev: B	Page 2 of 2	

FIRST ARTICLE INSPECTION CHECKLIST

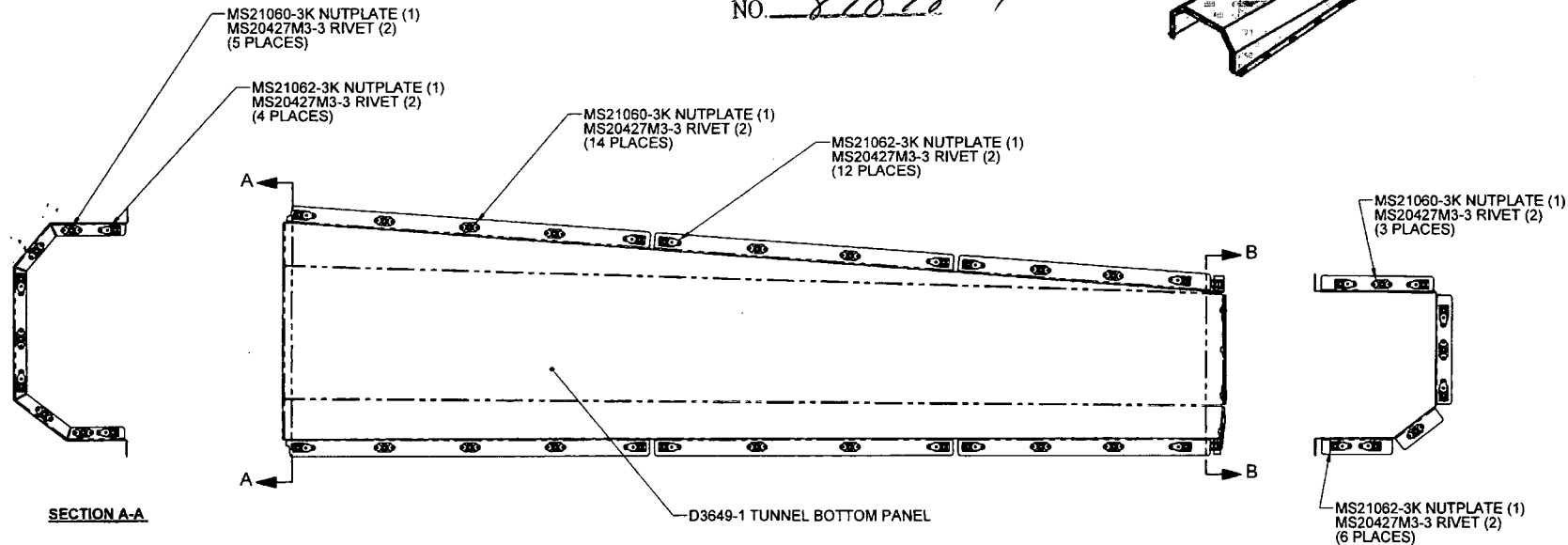
☒ First Article ☐ Prototype

Drawing Dimension	Tolerance	Actual Dimension	Accept	Reject	Method of Inspection	Comments
1.16	+/-0.030	1.164"	✓		✓	mmol
3.38	+/-0.030	3.379"	✓		✓	"
2.00	+/-0.030	2.002"	✓		✓	"
0.90	+/-0.030	0.904"	✓		✓	"
16.64	+/-0.030	16.64"	✓		MT	mmol
0.48	+/-0.030	0.477"	✓		✓	mmol
13.80	+/-0.030	13.80"	✓		MT	mmol
0.46	+/-0.030	0.461"	✓		✓	mmol
11.76	+/-0.030	11.749"	✓		✓	Protector
1.23	+/-0.030	1.213"	✓		✓	mmol
0.88	+/-0.030	0.885"	✓		✓	"
18.46	+/-0.030	18.46"	✓		MT	mmol
5.23	+/-0.030	5.239"	✓		✓	mmol
1.932	+/-0.010	1.939"	✓		✓	"
1.943	+/-0.010	1.930"	✓		✓	"
5.02	+/-0.030	5.028"	✓		✓	"
1.820	+/-0.010	1.827"	✓		✓	"
0.70	+/-0.030	0.710"	✓		✓	"
2.100	+/-0.010	2.108"	✓		✓	"
2.33	+/-0.030	2.344"	✓		✓	"
0.94	+/-0.030	0.953"	✓		✓	"
3.30	+/-0.030	3.303"	✓		✓	"
1.900	+/-0.010	1.912"	✓		✓	"
0.61	+/-0.030	0.626"	✓		✓	"

Measured by: Jm	Audited by: DAS	Prototype Approval:	N/A
Date: 12-7-23	Date: 16 2/4/23	Date:	N/A

Rev	Date	Change	Revised by	Approved
A	08.04.17	New Issue	KJ/DD	

SHOP COPY
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 WITHOUT NOTICE
 WORK ORDER
 NO. 87828 RD12-07-11



SECTION A-A

D3649-1 TUNNEL BOTTOM PANEL

SECTION B-B

D3649-041 BOTTOM PANEL ASSEMBLY

PART LIST

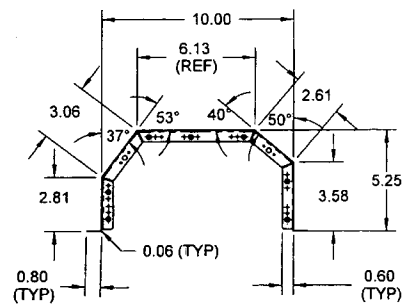
QTY -041	PART NUMBER	DESCRIPTION
X	D3649-041	TUNNEL BOTTOM PANEL ASSY.
1	D3649-1	TUNNEL BOTTOM PANEL
88	MS20427M3-3	RIVET
22	MS21060-3K	NUTPLATE
22	MS21062-3K	NUTPLATE

B	PAGE 3: MS20427M3 WAS MS20427M-3	RF	08.01.07
A	NEW ISSUE	RF	07.11.07
REV.	DESCRIPTION	BY	DATE
DESIGN	RF		
DRAWN	RF		
CHECKED	IE		
MFG. APPR.	RF		
APPROVED	RF		
DE APPR.	RF		
DATE	08.01.07		

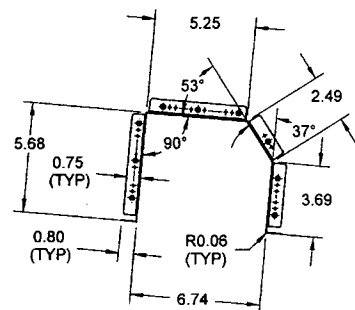
DART AEROSPACE LTD
 HAWKESBURY, ONTARIO, CANADA
 DRAWING NO. **D3649** REV. B
 SHEET 1 OF 3
 TITLE **BOTTOM PANEL ASSEMBLY** SCALE 1:5

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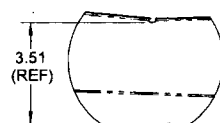
RELEASED
 28-03-28/11



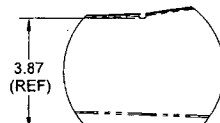
SECTION C-C



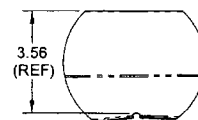
SECTION D-D



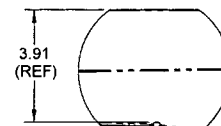
DETAIL E



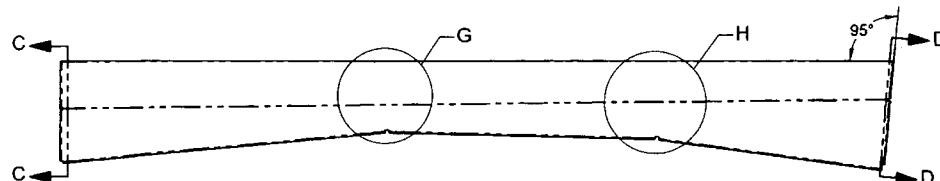
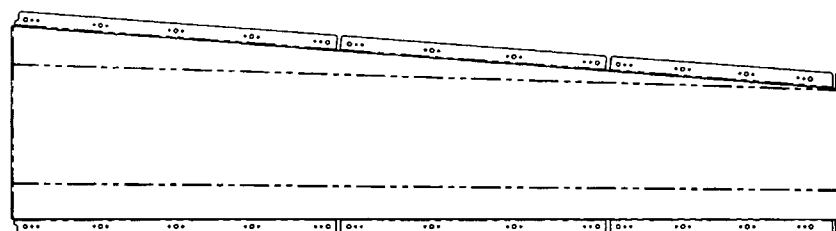
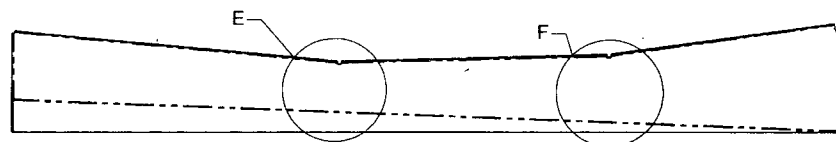
DETAIL F



DETAIL G



DETAIL H



D3649-1 TUNNEL BOTTOM PANEL
(MAKE FROM D3649-1F)

57678
1

RELEASED
08-03-27/11

DESIGN	RF	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
DRAWN	RF		
CHECKED	WLF	DRAWING NO.	REV. B
MFG. APPR.	WLF	D3649	SHEET 2 OF 3
APPROVED	WLF	TITLE	SCALE
DE APPR.	WLF	BOTTOM PANEL ASSEMBLY	1:6
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